

## I CLAIM:

1. A polarizing glass article comprising a base glass and precipitated silver particles wherein the polarizing glass article exhibits a contrast ratio of at least 40 dB over a wavelength range of 880 nm to 1,690 nm and a bandwidth of 810 nm.
2. A glass article according to claim 1 having a high transmittance value.
3. A glass article according to claim 2 wherein the transmittance value is above 90 percent at the wavelength ranging from 880 nm to 1,690 nm.
4. A polarizing glass article comprising a base glass and precipitated silver particles wherein the polarizing glass article exhibits a contrast ratio of at least 50 dB over a wavelength range of 980 nm to 1,640 nm and a bandwidth of 660 nm.
5. A glass article according to claim 1 having a high transmittance value.
6. A glass article according to claim 5 wherein the transmittance value is above 90 percent at the wavelength ranging from 980 nm to 1,640 nm.
7. A glass article according to claim 6 wherein the glass article has a center wavelength of at least 1,550 nm or longer.
8. A glass article according to claim 1 wherein the base glass has a composition consisting essentially, in weight percent, of about 0-2.5%  $\text{Li}_2\text{O}$ , 0-9%  $\text{Na}_2\text{O}$ , 0-17%  $\text{K}_2\text{O}$ , 0-6%  $\text{Cs}_2\text{O}$ , 8-20% total of  $\text{Li}_2\text{O} + \text{Na}_2\text{O} + \text{K}_2\text{O} + \text{Cs}_2\text{O}$ , 14-23%  $\text{B}_2\text{O}_3$ , 5-25%  $\text{Al}_2\text{O}_3$ , 0-25%  $\text{P}_2\text{O}_5$ , 20-65%  $\text{SiO}_2$ , 0.004-0.02%  $\text{CuO}$ , 0.15-0.3%  $\text{Ag}$ , 0.1-0.2%  $\text{Br}$ , and 0.1-0.25%  $\text{Cl}$ .
9. A glass article according to claim 8 including as optional constituents, up to about 10% total of other oxides or elements selected in amounts not exceeding the indicated proportions from the group consisting of up to 6%  $\text{ZrO}_2$ , up to 3%  $\text{TiO}_2$ , up to

0.5% PbO, up to 7% BaO, up to 4% CaO, up to 3% MgO, up to 6% Nb<sub>2</sub>O<sub>5</sub>, up to 4% La<sub>2</sub>O<sub>3</sub> and up to 2%F.

- 5 10. A process for broadening the wavelength range of dichroic glass polarizer comprising a base glass and precipitated silver particles, comprising the step of heating the glass at a temperature ranging from 400 to 450°C in a reducing atmosphere for a period of time greater than 12 hours, wherein the resulting polarizing glass exhibits a contrast ratio of at least 40 dB over a wavelength range of 880 nm to 1,690 nm and a bandwidth of 810 nm.
- 10 11. A process according to claim 10 wherein the broadening is made by enlargement of the wavelength range to a shorter wavelength region.
- 15 12. A process according to claim 10 wherein the reducing step is carried out at least one atmospheric pressure of reducing gas.
- 20 13. A process according to claim 12 wherein the atmosphere pressure of the reducing gas multiplied by the period of time is greater than 12.
- 24 14. A process according to claim 12 wherein the atmosphere pressure of the reducing gas multiplied by the period of time is greater than 24.
- 25 15. A process according to claim 10 wherein the temperature ranges from 405 to 450°C and the time is greater than 24 hours.
- 28 16. A process according to claim 10 wherein the temperature ranges from higher than 405 to 450°C and the time ranges from 16 to 24 hours.
- 30 17. A process according to claim 10 wherein the reducing atmosphere is hydrogen.
- 32 18. A process according to claim 10 wherein the contrast ratio is greater than 40dB.

19. A process according to claim 10 wherein the heating is carried out for 8 hours at a pressure of 3 atmospheres.

20. A process according to claim 10 wherein the heating is carried out for 6 hours at a pressure of 4 atmospheres.